

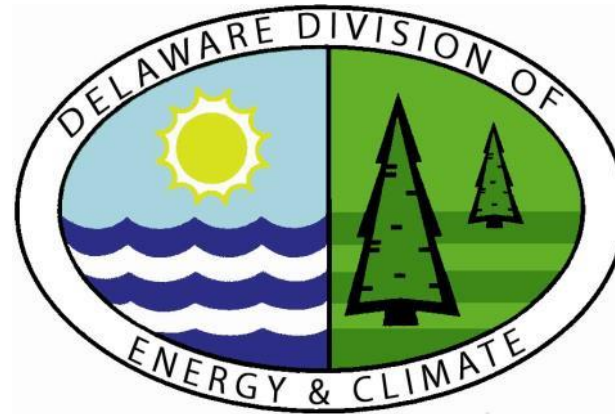


Climate Change and Comprehensive Planning

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November 27, 2017

2017 Comprehensive Plan Update & Climate Vulnerability Assessment



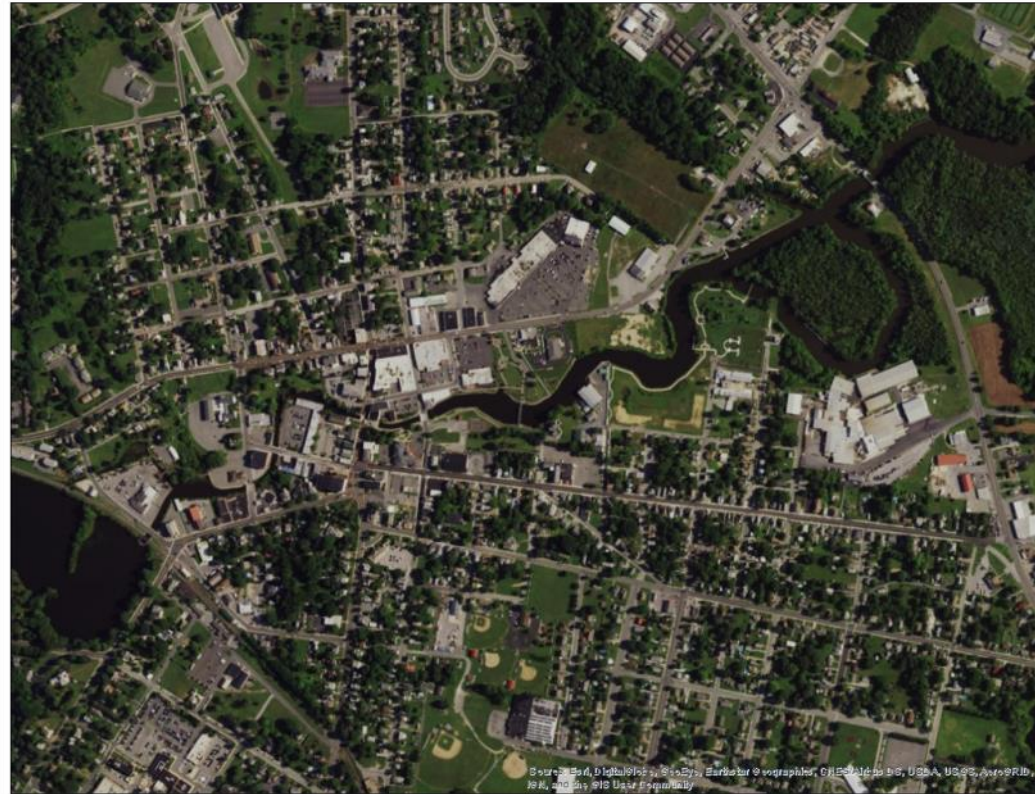
Milford's Challenges

- ▶ The City's Historic Central Business District is centered on the Mispillion River and impacted by the 100-year floodplain.
- ▶ Residential areas adjacent to the central business district include;
 - ▶ older housing stock
 - ▶ aging demographic
 - ▶ low-income populations
 - ▶ non-native English speaking populations.
- ▶ Downtown Revitalization.



Climate Vulnerability Assessment

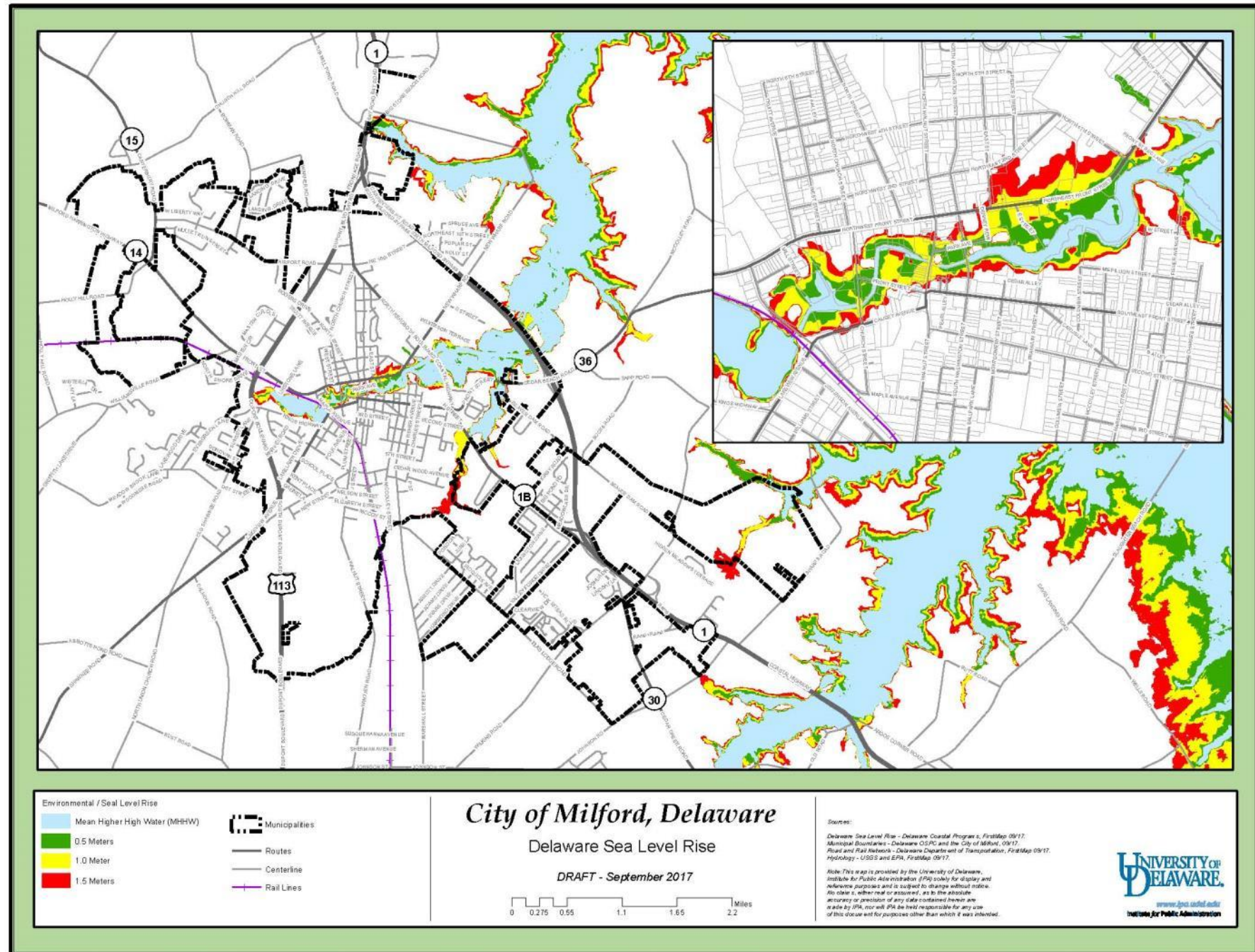
- ▶ Sea-Level Rise
- ▶ Heavy Precipitation
- ▶ Increased Temperatures



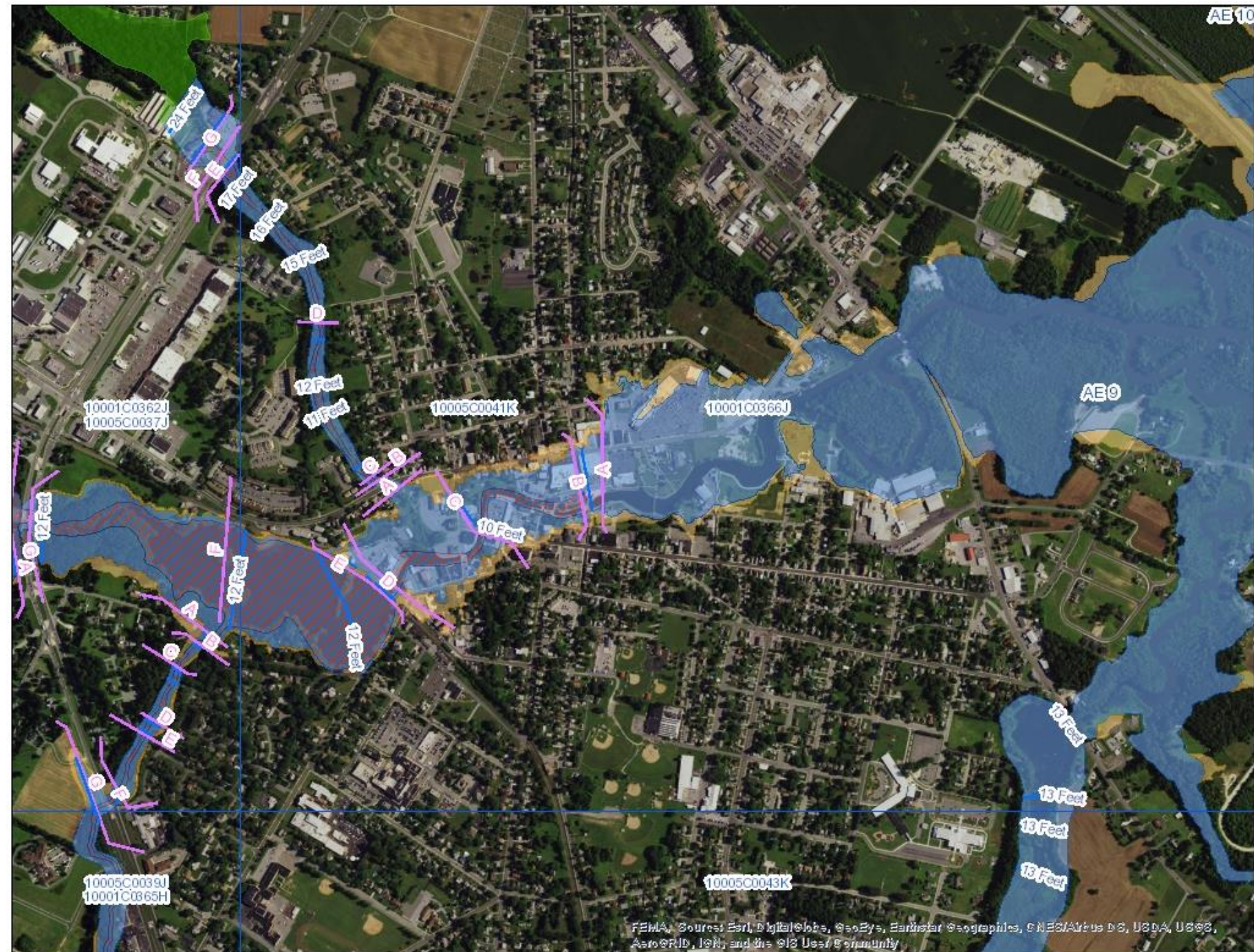
Sea-Level Rise and Heavy Precipitation

- ▶ GIS Analysis of community assets and inundation maps.
- ▶ Community Assets include roads, land, historic districts and structures, municipal buildings, evacuation routes etc.
- ▶ Sea-Level Rise
 - ▶ 2012 SLR - 0.5, 1.0 & 1.5 meter scenarios
- ▶ Heavy Precipitation
 - ▶ FEMA Flood Insurance Rate Map (FIRM)
 - ▶ DNREC's Flood Risk Adaptation Map (FRAM) - 1% chance of annual storm event after three (3) feet of sea level rise or "Future Floodplain Map."

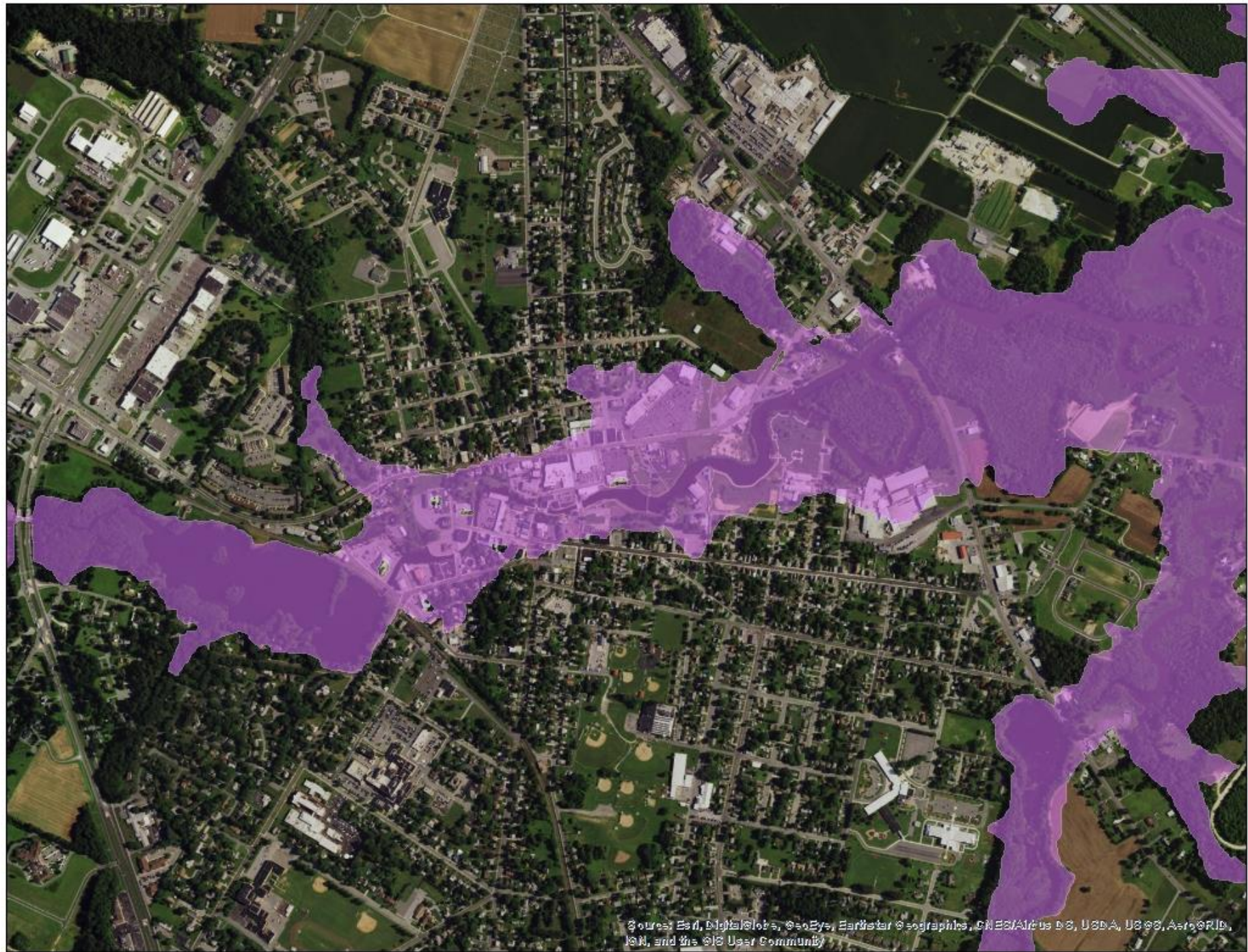
Sea-Level Rise Exhibit



FEMA FIRM Exhibit



FRAM Exhibit



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

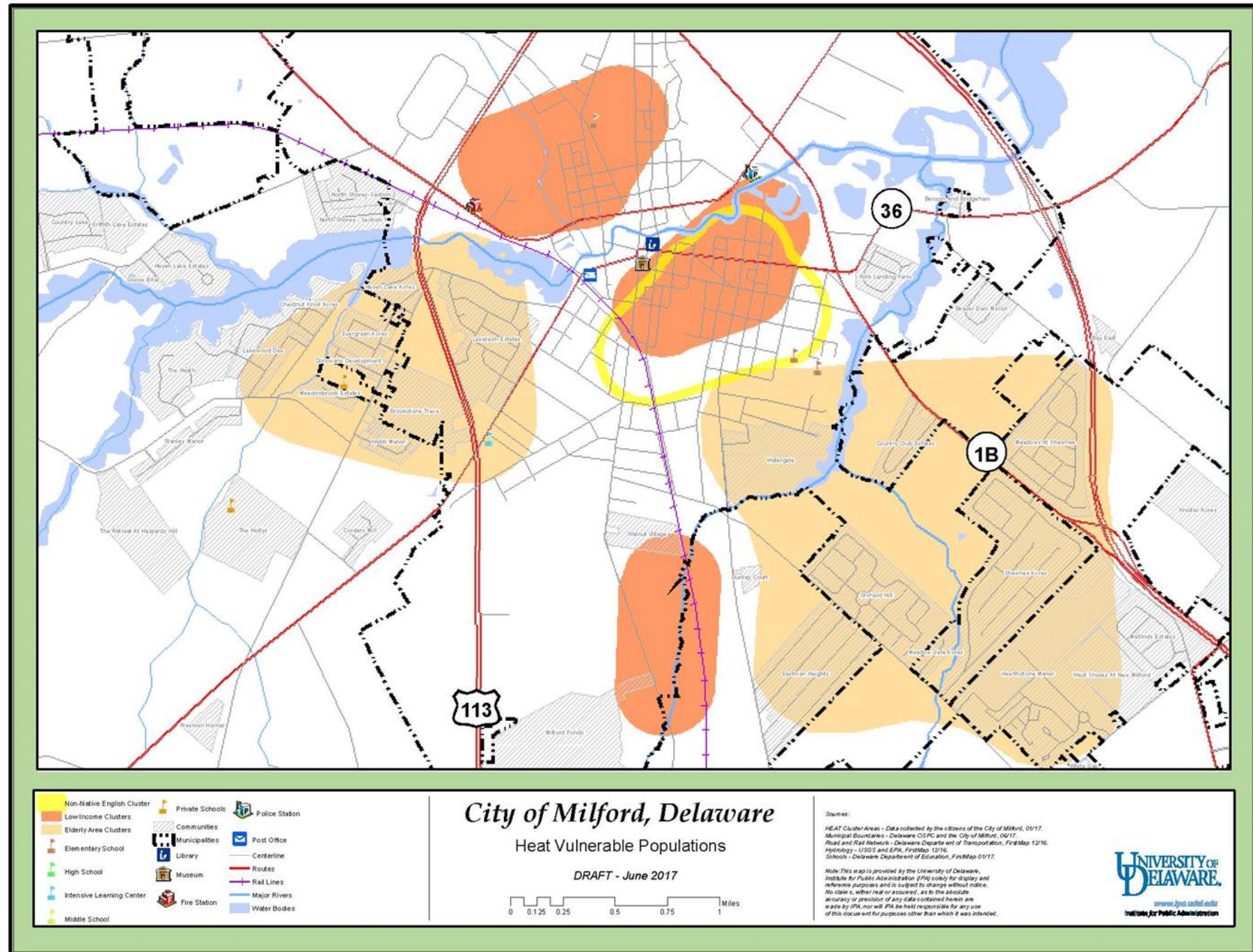
Community Assets

| Milford Community Assets/Resources | FIRM | | Delaware SLR | | | FRAM |
|---|-------|-----------------------------|--------------|-------|-------|--------------------------------------|
| | AE+A | AE+A+0.2 | 0.5m | 1.0m | 1.5m | |
| Roads (miles) | 3.52 | 5.07 | .65 | 1.37 | 2.70 | 6.20 |
| Residential Land (% of total) | 60.2 | 70.4 | 4.9 | 8.8 | 17.5 | 52.1 |
| Commercial Land (% of total) | 99.7 | 107.5 | 13.4 | 25.7 | 36.8 | 73.0 |
| Total Land Area (acres) | 422.1 | 478.3 | 48.2 | 102.8 | 166.5 | 402.3 |
| Historic District (% of total) | 13.7% | 20.6% | 3.7% | 7.8% | 10.6% | 28.4% |
| Municipal Services (fire, police, school, library, cemeteries, municipal buildings, etc.) | None | Police Station, Post Office | None | None | None | Police Station, Post Office, Library |
| Downtown Development District (% of total) | 29.1% | 35.0% | 9.9% | 18.2% | 24.7% | 41.9% |
| Brownfield/Superfund Sites | None | None | None | None | None | None |
| Underground Storage Tanks (no.) | 18 | 23 | 5 | 11 | 15 | 22 |
| Septic Systems (no.) | 2 | 3 | 1 | 1 | 1 | 1 |

Increased Temperatures

- ▶ Locate populations vulnerable to increased temperatures
 - ▶ Elderly
 - ▶ Low Socio-Economic Status
 - ▶ Isolated Persons
 - ▶ Immigrants and Non-Native English Speakers
- ▶ Census Data (for larger areas)
- ▶ Community Mapping Exercise

Increased Temperatures Exhibit



Climate Impacts and Comprehensive Planning

- ▶ Community Character
- ▶ Housing
- ▶ Community & Economic Development
- ▶ Government Services & Infrastructure
- ▶ Transportation
- ▶ Land Use and Annexation
- ▶ Natural Resources
- ▶ Open Space & Recreation

Sea-Level Rise and Heavy Precipitation Plan Recommendations

- ▶ Amend the Floodplain Ordinance and adopt a freeboard requirement for building construction.
- ▶ Encourage low-impact development and resilient stormwater management practices.
- ▶ Collaborate with DelDOT to conduct a climate change vulnerability analysis to identify at-risk transportation assets and strategies for mitigation.
- ▶ Consider refining City's buffering regulations, parking and loading standards, and impervious coverage standards.

Increased Temperatures Plan Recommendations

- ▶ Update the City's building code to a more recent version.
- ▶ Support energy efficiency and renewable energy upgrades.
- ▶ Protection and enhancement of the urban tree canopy.
- ▶ Consider additional electricity demand from increased usage during periods of sustained high temperature when planning electric infrastructure.
- ▶ Establish cooling centers near vulnerable populations.

Lessons Learned

- ▶ Engage Early and Often
- ▶ Emphasize Resiliency
- ▶ Maps work better than tabular data

Climate-Conscious Comprehensive Planning in Delaware

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<http://www.ipa.udel.edu/publications/cccpd-2017.pdf>